Cyberbullying among male adolescents with attention-deficit/hyperactivity disorder: Prevalence, correlates, and association with poor mental health status

Cheng-Fang Yen a,b,1, Wen-Jiun Chou c,1, Tai-Ling Liu a, Chih-Hung Ko a,b,d, Pinchen Yang a,b, Huei-Fan Hu e,*

a Department of Psychiatry, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan
b Department of Psychiatry, Faculty of Medicine, and Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan
c Department of Child and Adolescent Psychiatry, Chang Gung Memorial Hospital, Kaohsiung Medical Center and College of Medicine, Chang Gung University, Kaohsiung, Taiwan
d Department of Psychiatry, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan
e Department of Psychiatry, Tainan Municipal Hospital, Tainan, Taiwan

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A B S T R A C T
The aims of this study were to examine the prevalence rates and multilevel correlates of cyberbullying victims and perpetrators among male adolescents diagnosed with attention-deficit/hyperactivity disorder (ADHD) in Taiwan. The relationships between cyberbullying involvement and depression, anxiety, and suicidality were also examined. The experiences of cyberbullying victimization and perpetration in 251 male adolescents with ADHD were assessed. Logistic regression analysis was used to examine the correlates of cyberbullying victims and perpetrators. The relationships between cyberbullying involvement and depression, anxiety, and suicidality were examined using multiple regression analysis. A total of 48 (19.1%) and 36 (14.3%) participants reported that they were cyberbullying victims or perpetrators, respectively. Those who had increased age and a higher parental occupational socioeconomic status, and reported more severe traditional passive bullying victimization were more likely to be cyberbullying victims. Those who had increased age and combined-type ADHD, and reported lower BAS reward responsiveness, more severe Internet addiction and more severe traditional passive bullying perpetration were more likely to be cyberbullying perpetrators. Cyberbullying victims reported more severe depression and suicidality than those who were not cyberbullying victims. A high proportion of male adolescents with ADHD are involved in cyberbullying. Clinicians, educational professionals, and parents of adolescents should monitor the possibility of cyberbullying involvement among male adolescents with ADHD who exhibit the cyberbullying correlates identified in this study.

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* Corresponding author at: Department of Psychiatry, Tainan Municipal Hospital, 670 Chongde Road, East District, Tainan 701, Taiwan.
Tel.: +886 6 260926886; fax: +886 6 2606351.
E-mail address: cych07205@gmail.com (H.-F. Hu).
1 These authors contributed equally to this study.
1. Introduction

Cyberbullying is a new mode of bullying that has emerged in the digital age (Kowalski, Limber, & Agatston, 2012). Cyberbullying involves bullying through the use of electronic venues, such as social networking sites, e-mail, chat rooms, instant messaging, Web sites, online games, and text messaging (Kowalski & Limber, 2013). Research has revealed that both adolescent victims and perpetrators of cyberbullying are more likely to have psychological problems, including depression (Yang et al., 2013), anxiety (Kowalski & Limber, 2013; Yang et al., 2013), suicidality (Kowalski & Limber, 2013; van Geel, Vedder, & Tanlion, 2014), substance abuse (Sourander et al., 2010; Ybarra, Espelage, & Mitchell, 2007), and adjustment problems in school (Kowalski & Limber, 2013), than those who are not involved in cyberbullying. Therefore, cyberbullying among adolescents is a serious health problem that warrants further investigation by mental health and education professionals.

The prevalence and correlates of cyberbullying in adolescents clinically diagnosed with attention-deficit/ hyperactivity disorder (ADHD) have not been thoroughly investigated. Two findings support the importance of investigating cyberbullying in adolescents clinically diagnosed with ADHD. First, both cross-sectional and prospective studies have identified children and adolescents with ADHD as a high-risk group of traditional bullying victimization and perpetration (Holmberg & Hjern, 2008; Yang et al., 2013). Furthermore, traditional bullying co-occurs frequently with cyberbullying (Hinduja & Patchin, 2008). Second, a 2-year prospective study reported that ADHD can predict the occurrence of Internet addiction in adolescents (Ko, Yen, Chen, Yeh, & Yen, 2009), indicating that adolescents with ADHD may spend more time on the Internet than do adolescents without ADHD. Thus, the risk of cyberbullying involvement may be increased for adolescents with ADHD. Examining the prevalence and correlates of cyberbullying involvement and its association with mental health problems in adolescents clinically diagnosed with ADHD is clinically crucial.

Previous studies have examined the associations of several individual, family, and peer factors with cyberbullying involvement in children and adolescents. Regarding individual factors, although low self-esteem was determined to be associated with cyberbullying perpetration and victimization (Yang et al., 2013), the results of previous studies on gender (Hinduja & Patchin, 2008; Wang, Iannotti, & Nansel, 2010) and age difference (Hinduja & Patchin, 2008; Schneider, O’Donnell, Stueve, & Coulter, 2012) in the context of cyberbullying involvement are mixed. Regarding family factors, living in a family that does not comprise two biological parents (Sourander et al., 2010) and poor relationships with parents (Berab & Li, 2007) were observed to be associated with cyberbullying victimization. Regarding peer factors, whereas certain studies have presented mixed results on the association between cyberbullying and poor peer relationships (Calvete, Orue, Estévez, Villardón, & Padilla, 2010; Williams & Guerra, 2007), most of them have indicated that involvement in physical, verbal, and relational bullying are significantly associated with cyberbullying involvement (Hinduja & Patchin, 2008; Salmivalli, Sainio, & Hodges, 2013). Individual, family, and peer correlates of cyberbullying involvement have not been thoroughly examined in adolescents clinically diagnosed with ADHD.

Previous studies have indicated that severe ADHD symptoms (Kawabata, Tseng, & Gau, 2012), comorbid oppositional defiant disorder (ODD) and conduct disorder (Holmberg & Hjern, 2008), and autism spectrum disorders (ASDs) (Montes & Halterman, 2007) were significantly associated with the traditional bullying involvement of children and adolescents with ADHD. Studies have also reported the significant associations existing between hyperactivity symptoms and cyberbullying perpetration (Sourander et al., 2010), as well as those between excessive Internet use and cyberbullying perpetration and victimization among children and adolescents in a community (Floros, Siomos, Fisoun, Dafouli, & Geroukalis, 2013; Smith et al., 2008). However, the association of ADHD-related characteristics and psychiatric comorbidities with cyberbullying involvement in adolescents clinically diagnosed with ADHD has not been examined.

The association of cyberbullying involvement with ADHD-related behavioral temperamental traits, such as the behavioral inhibition system (BIS) and behavioral approach system (BAS), also requires further study. According to Gray’s reinforcement sensitivity theory (Gray & McNaughton, 2003), the BIS represents sensitivity to punishment and reflects anxiety, whereas the BAS represents sensitivity to reward. Compared with the general population, people with ADHD have low BIS inhibition (Hart, Radua, Nakao, Mataix-Cols, & Rubia, 2013), low BAS drive (Castellanos & Tannock, 2002) and high BAS fun seeking (Franken & Muris, 2006). The relationships between behavioral temperamental traits in the BIS and BAS and cyberbullying involvement in adolescents with ADHD are not well characterized.

The aims of this study were to examine the prevalence rates of cyberbullying victimization and perpetration, and their associations with individual (demographic characteristics, behavioral temperamental traits, and self-esteem), ADHD-related (ADHD subtypes and symptoms, and receiving medication for ADHD), psychiatric comorbidity (ODD or conduct disorder, ASD, tic disorder, and Internet addiction), family (parental marriage and occupational socioeconomic status [SES] and satisfaction with family relationships), and peer factors (satisfaction with peer relationships and four types of traditional bullying involvement) in a group of male adolescents clinically diagnosed with ADHD in Taiwan. Research has found gender differences in ADHD (Biederman, Faraoane, & Monuteaux, 2002), Internet use behaviors (Ko, Yen, & Yen, 2005) and traditional bullying involvement (Veenstra et al., 2005), and thus we focused on male adolescents with ADHD in this study.
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